

**Notice of Allowability**

Application No.

10/783,562

Examiner

Juan C. Ochoa

Applicant(s)

FENG ET AL.

Art Unit

2123

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 9/6/07.
2. ☒ The allowed claim(s) is/are 21-40.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### DETAILED ACTION

1. The amendment filed 9/6/07 has been received and considered. Claims 21–40 are presented for examination.

#### ***Examiner's Amendment***

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
3. Authorization for this examiner's amendment was given in a telephone interview with Roger Chu on 9/19/07.
4. The application has been amended as follows:
5. Claim 21 line 7, immediately after the term "independent of", the following has been inserted -- trial-and-error --.
6. Claim 31 line 8, immediately after the term "independent of", the following has been inserted -- trial-and-error --.
7. Claim 36 line 14, immediately after the term "independent of", the following has been inserted -- trial-and-error --.

#### ***Allowable Subject Matter***

8. Claims 21–40 are allowed over prior art of record.
9. The following is an examiner's statement of reasons for allowance:
10. While Nonlinear FEA of Elastomers-MSC Technical Paper, MSC Software, discloses defining a plurality of finite elements and a strain-stress

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curve to represent the compressible material (see page 6, col. 2, 3<sup>rd</sup> paragraph to end of col. 3); calculating a plurality of stress function  $f(\lambda)$  values (see page 21, col. 2, last paragraph),

Gallagher et al., An Efficient 3-D Visualization Technique for Finite Element Models and Other Coarse Volumes discloses storing the plurality of stress function values into a lookup table (see page 187, col. 1, 2<sup>nd</sup> paragraph) and evaluating element stresses in a local coordinate system from the lookup table in accordance with a set of principal stretches at each integration point of each of the finite elements (see page 191, col. 1, 5<sup>th</sup> paragraph),

and Peric discloses a method wherein the set of principal stretches is obtained by solving eigensolution for deformation gradient tensor at each integration point of each of the finite element (see page 1515, Remark 4.2, lines 1–4),

none of these references taken either alone or in combination with the prior art of record disclose a method for simulating structural responses specifically including:

claim 21, "calculating a plurality of stress function  $f(\lambda)$  values, with each value at a particular stretch ratio  $\lambda$  of interest, independent of trial-and-error curve fitting determination of material constants of Ogden strain energy function",

claim 31, "calculating a plurality of stress function  $f(\lambda)$  values with each value at a particular stretch ratio  $\lambda$  of interest, independent of trial-and-error curve fitting determination of material constants of Ogden strain energy function",

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claim 36, "calculating a plurality of stress function  $f(\lambda)$  values with each value at a particular stretch ratio  $\lambda$  of interest, independent of trial-and-error curve fitting determination of material constants of Ogden strain energy function", in combination with the remaining elements and features of the claimed invention.

11. Also, there is no motivation to combine none of the references to meet these limitations. It is for these reasons that applicant's invention defines over the prior art of record.

12. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Response to Arguments***

13. Applicant's arguments filed 9/6/07 have been fully considered, and they are persuasive.

14. Regarding the specification objections, the amendment corrected all deficiencies and the objections are withdrawn.

15. Regarding the drawing objections, the amendment corrected all deficiencies and the objections are withdrawn.

16. Regarding the claim objections, the amendment corrected all deficiencies and the objections are withdrawn.

17. Regarding the rejections under 112, the amendment corrected all deficiencies and the rejections are withdrawn.

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18. Regarding the rejections under 101, the amendment corrected all deficiencies and the rejections are withdrawn.

19. Regarding the rejections under 103; they are persuasive, and the rejections are withdrawn.

***Conclusion***

20. Examiner would like to point out that any reference to specific figures, columns and lines should not be considered limiting in any way, the entire reference is considered to provide disclosure relating to the claimed invention.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan C. Ochoa whose telephone number is (571) 272-2625. The examiner can normally be reached on 7:30AM - 4:00 PM.

22. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on (571) 272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

23. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-

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free). If you would like assistance from a USPTO Customer Service

Representative or access to the automated information system, call 800-786-

9199 (IN USA OR CANADA) or 571-272-1000.

\*\*\* JP 9/21/07



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